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Briefing document for participants to the Open Access meeting to be held at CERN on 3rd November 2006

Establishing a Consortium for Open Access (OA) Publishing in Particle Physics

A proposal prepared by the Secretariat[1] of the Task Force, based on the "*Report of the Task Force on Open Access Publishing in Particle Physics*[2]"

A meeting has been called at CERN on November 3rd 2006 to work towards establishing a consortium of major particle physics funding agencies, aimed at guiding a transition of the current subscription model for journals to a more stable, more competitive and more affordable future for the dissemination of quality-assured scientific information adapted to the era of electronic publishing.

1) Why is a move to OA publishing necessary?

In recent years the rising cost of journal subscriptions has been regularly discussed and there have been significant cancellations. However, no major journal has ceased publication, mainly thanks to the continuing commitment of libraries and universities in paying subscriptions in order to protect the peer-review process and quality-recognition system that are currently operated by the publishers. At the same time, the growing strength of the parallel repositories in particle physics, *e.g.* arXiv, CERN Document Server, where one can read free versions of the articles, is putting increasing pressure on an already fragile publication system and libraries faced with further budget cuts will have few options left but to reconsider their commitment.

In order to protect the established peer-reviewed physics journals and the quality that is associated with these publications, a move to OA is proposed whereby funding for the services that journals provide will be moved from the reader/subscription side to the author/publication side. In effect this will initially be just a shift of money but will eventually lead to increased competition in the market, and scalability of costs with any expansion of research. Such a change will stabilize the publication system and broaden access to research (as articles will become freely accessible to all readers[3]) by the costs being born on the author side thus making them OA. Such a system is already becoming established in the medical sciences area where the Wellcome Trust now dedicates 1% of its budget to support the dissemination of the research it funds, including the payment of author-side publication costs[4].

There are strong arguments for a move to OA publication, but the change cannot happen smoothly by itself and a concerted effort by all players is necessary to manage the

[1] Contributors: David Dallman, Salvator Mele, Jens Vigen, Rüdiger Voss and Joanne Yeomans
[2] Report of the Task Force on Open Access Publishing in Particle Physics / Voss, Rüdiger (ed.) <http://cdsweb.cern.ch/search.py?recid=966160&ln=en >
[3] Study on the economic and technical evolution of the scientific publication markets in Europe <http://ec.europa.eu/research/science-society/pdf/scientific-publication-study_en.pdf>
[4] Wellcome Trust position statement in support of open and unrestricted access to published research <http://www.wellcome.ac.uk/doc_WTD002766.html>

transition. In the area of particle physics, the start of the LHC project in 2007 is a unique opportunity for a rapid transition to OA publishing that the community cannot afford to miss.

The major funding agencies of particle physics research have an opportunity to take the lead by reallocating money to OA publication so that a smooth transition from the current subscription model can be achieved.

2) The publishing landscape in particle physics

The particle physics publishing landscape is characterized by a relatively small number of journals, with roughly a dozen titles covering about 90% of the primary research. The electronic preprint repositories, in existence for the past fifteen years, are the most well-established among all fields of research. This preprint system has so far not directly harmed journal publishing because the two serve different purposes: the first is the primary communication medium for most particle physicists, while the second performs the quality stamping that assists readers and is needed by authors for career progression and for establishing the version of record. However, as more and more libraries are reaching the financial breaking point, the continuation of even important subscriptions will be questioned.

The published literature can be divided into three main sub-fields: theory (currently representing about 80% of all published articles in the field), instrumentation, and experimentation. Proportions of articles from these three sub-fields vary depending on the time scale of various major experiments. There is also some overlap with cosmology and particle astrophysics.

The first major journal in the field to experiment with OA was the Journal of High Energy Physics (JHEP) in 1997. Unfortunately, it was the only one of its kind at the time and although it was well supported by the community, it did not collect sustainable funding. However, this innovative, community-operated journal was then converted into a low-cost subscription journal that now has an impressive reputation and an impact factor at the level of the most prestigious journals in the field. In 1998 the Institute of Physics (IOP) and the Deutsche Physikalische Gesellschaft (DPG) launched a more generic journal, the New Journal of Physics, which has continued to find success although the publisher admits it is periodically struggling. What is missing in making these models work is having the publication funds in the right place to pay from the author side, and what prevents this kind of change seems only to be the lack of a more widespread replication of such models across a larger number of journals. Theoretically the OA model with author-side fees offers a solution to ongoing problems with the subscription model (concerning both finance and access), and constitutes a sustainable solution for the future publishing of research. However, for the model to be accepted and work efficiently, it needs to apply to a wide spread of titles in order to achieve the ‘level playing field’, advocated by the publishing industry as being necessary.

In December 2005, following a meeting of major stakeholders in the field of particle physics publishing[5], a task force was charged with investigating the possibility of sponsoring a large number of journals, in order to begin a transition to OA publishing across the whole particle physics field. The task force produced its report[6] in June 2006 in which it considered how such a sponsoring consortium might operate.

The report mainly examined the possibility of supporting a handful of titles from Springer, IOP, the American Physical Society (APS) and the American Institute of Physics (AIP), all of whom had declared themselves ready for OA publishing. Just before publication of the report, Elsevier also announced that it would accept author-side payment to make articles in its particle physics journals free for readers. As a result of discussions stimulated by the task force, APS and AIP also announced such an option for all their journals. Whilst most of these options do not offer full OA conditions, they are steps in the direction of enlarged access to the literature.

The report concluded that as a number of journals in the field were ready to experiment with OA, and as a number of large research institutions were ready to support these titles both financially and by author encouragement, the remaining action necessary was to make a funding arrangement, called SCOAP^3 – a Sponsoring Consortium for Open Access Publishing in Particle Physics.

In summary, the publishers of the main journals are ready to offer author-fee publishing and enter into discussions about OA publishing. The research community itself is better educated than ever before about the problems with the current model and the necessity for a shift. The world outside physics is moving in the same direction. The remaining challenge is to reorganize funding of publication and to raise funds to support the transition to the new system. The particle physics publishing sphere will again become stable and the various players can benefit from the technical efficiencies that an OA landscape should enable.

3) A consortium to facilitate the transition to OA publishing

The consortium is an alliance set up to optimise the impact of OA sponsoring. Each partner is requested to contribute to the consortium with a fair share. The SCOAP^3 model is proposed for supporting the transition to a new publication paradigm until an OA publishing model is firmly established. However, it may turn out to be preferable to keep the consortium in place for a longer period in order to profit from its influence on both the market and the author base. Time and practical experience will show which of these will be the better solution, and it would be premature to attempt a choice between the two options already.

Based on the cost per article quoted by the publishers, and the number of articles published in the period 2003-2005, sponsoring all journals ready for OA at the time of the task force enquiry would have required an annual budget of 5-6 M€. To start a significant OA exercise today, it is estimated that at least 3 M€/year will be needed. It should be

[5] Colloquium on Open Access Publishing in Particle Physics
<http://indico.cern.ch/conferenceDisplay.py?confId=482>

[6] Report of the Task Force on Open Access Publishing in Particle Physics / Voss, Rüdiger (ed.)
<http://cdsweb.cern.ch/search.py?recid=966160&ln=en >

noted that this sum is significantly less than the present global expenditure for particle physics journal subscriptions, *e.g*. the subscription costs related to one particular journal integrated across the institutions participating in CERN experiments, amounts to 4.8 M€/year[7] according to the publisher's list price.

Potential funding partners of the consortium are:

funding agencies supporting particle physics;
major particle physics laboratories;
major author communities, *e.g.* large experimental collaborations;
funding agencies supporting OA publishing in general;
libraries.

The consortium will offer to collaborate with all publishers proposing OA solutions. However, only journals corresponding to a set of criteria to be defined by the consortium will enjoy financial sponsorship. To ensure academic freedom for the particle physics community the consortium will commit itself to raise sufficient funds to ensure the availability of more than one journal title for each related sub-discipline. It is expected that the purchasing power of the consortium will have a significant influence on the publishing market.

Tentatively a transition period of 3-5 years should be envisaged to allow time for grant cycles to be adapted to author-side financing of publishing costs and for publishers to fine tune their OA policies. Ultimately, the sponsoring budget should be shared between funding agencies on a pro rata basis, according to the number of papers resulting from the research that they support. At the end of this period, a large part of the particle physics literature should be available as OA. The cost for publications authored by multinational collaborations would be shared between the participating funding agencies. A mechanism would have to be put in place to evaluate this sharing *e.g.* on a yearly basis. Thus payments would be based on the previous year's publication pattern but paid in advance at the start of the year.

Each funding partner will commit a certain amount to the total SCOAP^3 budget. SCOAP^3, acting on behalf of its members, will put out a tender for the selection of journals to sponsor. This will contain certain conditions for publication and costs. The total budget will be considered and journals will be selected in accordance with the conditions laid down in the tender. Journals might be supported in two different ways: fully OA journals and hybrid journals.

[7] The publisher's list price for *Nuclear instruments and methods in physics research, section A+B*: 16.000 Euro/year × ~300 subscribing institutes = 4,8 MEuro/year

3.1) Fully OA journals

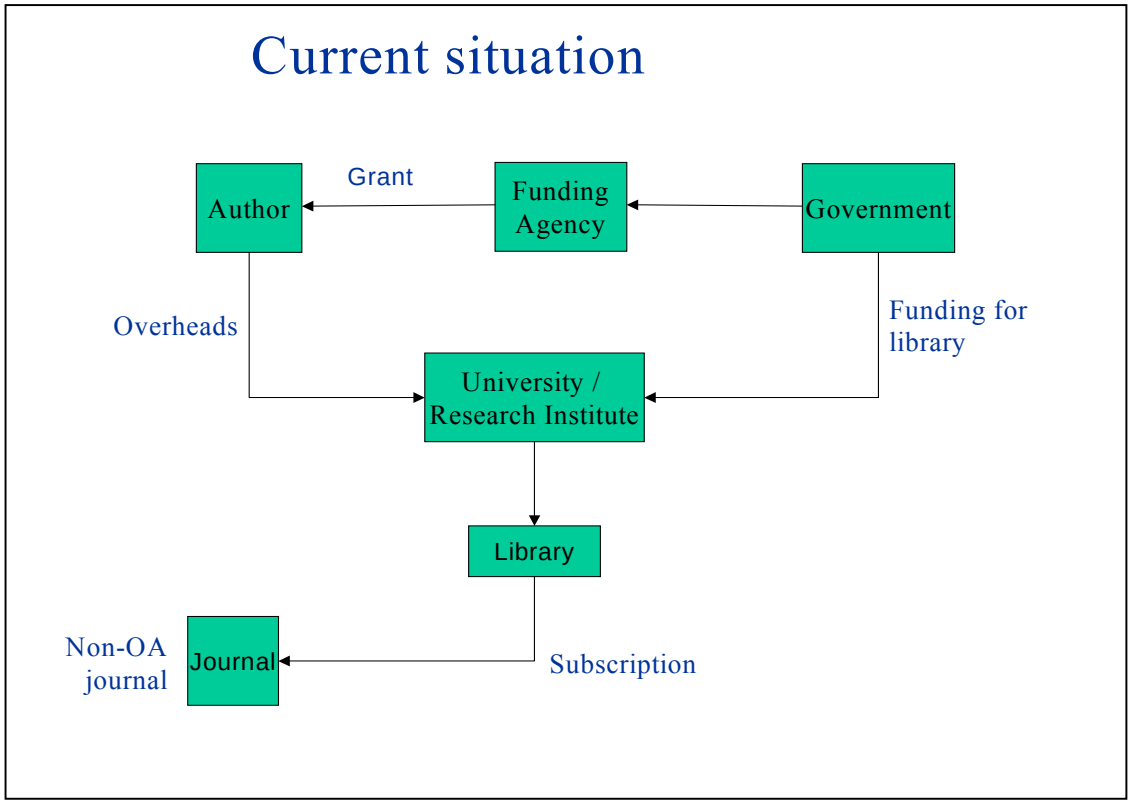
Theoretically any journal could be converted to OA immediately if all current subscribers converted their subscriptions into sponsorship. A fully-sponsored journal in the proposed scenario will therefore be financed in the following way: all subscribing libraries will maintain payments to the publishers, who will then treat these as sponsorship money for OA, during a transition period of 3-5 years. In this way the journal could immediately be converted to full OA. During this period, institutions will gradually transfer relevant parts of their library subscription budgets into contributions to their funds for author fees. Some of the institutions that do not have a particle physics author base may opt to cancel subscriptions during this transition period because the content of the journals will be freely accessible. This financial gap, likely to grow with time, will be filled by SCOAP^3, complemented by an increasing number of articles financed from research grants. Funding agencies must immediately introduce a mandate so that after the transition all grants will require OA publication and include funds to cover such costs. In this way the financial support for the journals will gradually transfer from readers to authors.

3.2) Hybrid journals

More and more publishers are adopting a hybrid model in which a part of the articles is made available in OA while the rest remains behind toll barriers - the decision between the two kinds of access is the author's rather than the publisher's. Authors who choose the free option must pay a fee (or find a sponsor to pay the fee) to cover the publisher's expenses. In return the publisher provides immediate free online access to the article at its own Web site and commits itself to reduce subscriptions proportionally. Authors who do not choose the free option do not pay a processing fee, though they might still have to pay page or colour charges.

These hybrid journals will be financed through subscriptions and publication fees. Libraries will continue to subscribe to the non-OA content. Authors will be asked to pay publication fees from their research grants, but if these fees are not yet included in the grants, SCOAP^3 will cover them for affiliated authors.

A risk inherent in this model is that the community pays twice for a journal, namely for the subscription and for the article fees. Therefore, to profit from consortium sponsoring, publishers must make a firm commitment to lower the subscriptions. By this means, SCOAP^3 can target individual journals for maximum cost reduction impact. Funding agencies must immediately introduce a mandate so that after the transition period all grants will require OA publication and include funds to cover such costs. After this time the role of SCOAP^3 will be re-evaluated.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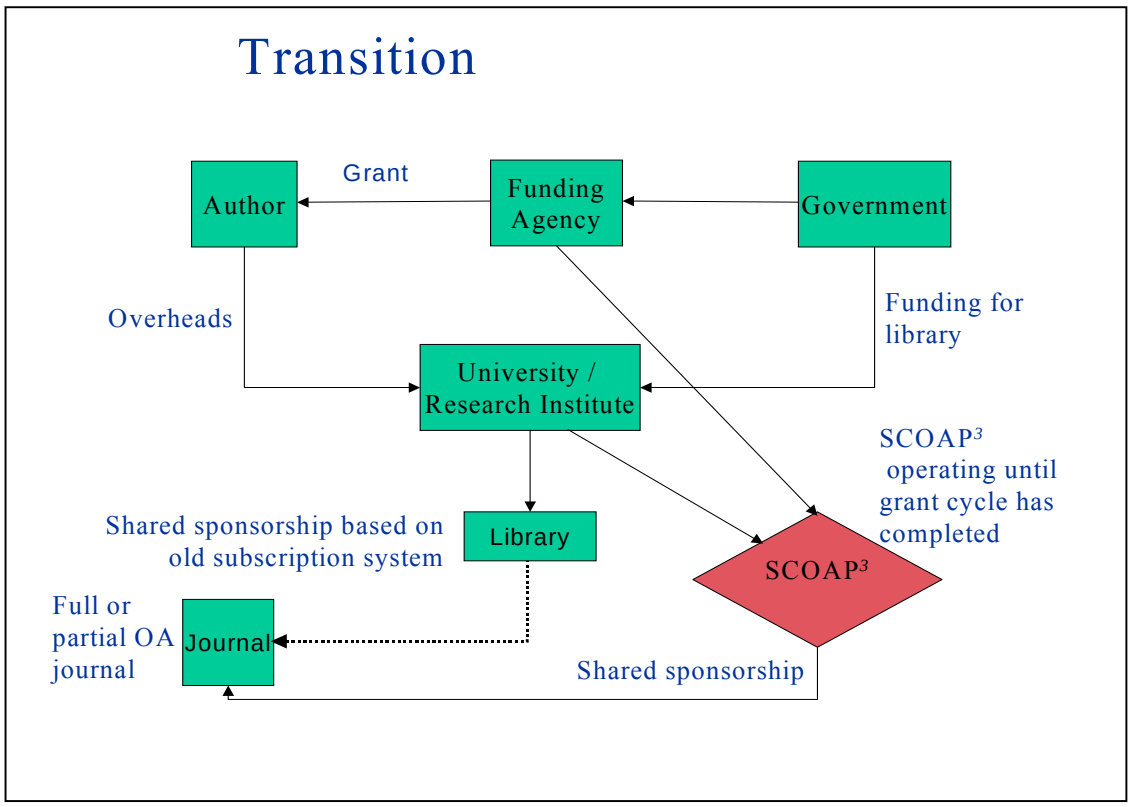
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Government
Overheads
Funding for library
University / Research Institute
SCOAP³ operating until grant cycle has completed
Shared sponsorship based on old subscription system
Library
SCOAP³
Full or partial OA journal
Journal
Shared sponsorship

4) Future stable landscape

Ultimately all the major particle physics journals would be converted into OA journals. Authors would be expected to pay for their own publications from their research grants but each funding agency must mandate OA publication to ensure that its authors use the funds for this purpose. At this point, each funding agency might choose to cap its allocation per article in order to encourage authors to choose a low-cost journal. Thus authors will not be forced to publish in particular journals but will be encouraged to choose a competitive option that will ensure future moderation in the publishing market.

5) Publishers

The following particle physics journals currently have OA sponsorship options:

European Physical Journal C : Springer
New Journal of Physics : IOP
Nuclear Instruments and Methods in Physics Research A : Elsevier
Nuclear Physics B : Elsevier
Physics Letters B : Elsevier
Physical Review D : APS
Physical Review Letters : APS
Physical Review Special Topics - Accelerators and Beams (PRSTAB) : APS
Review of Scientific Instruments : AIP
Reviews of Modern Physics : APS

The charge per article currently ranges from $975 to $3000. The consortium will have a large purchasing power and will therefore be in a position to negotiate appropriate publishing fees. SCOAP^3 should be in a different position from library subscription consortia that have turned out to be less effective than one might have expected in keeping costs to a reasonable level, as SCOAP^3 members also will have the possibility of convincing their affiliated authors to publish in the most cost effective, quality journals. The publishers signing a contract with SCOAP^3 will be required to unbundle the so-called journal packages in order to make the savings related to the sponsored titles transparent to the libraries.

JHEP, a low-cost subscription journal, does not currently offer an OA option, but the publisher has expressed strong interest in collaborating with SCOAP^3.

6) November 3rd Meeting

The meeting will gather representatives of major European particle physics agencies and library consortia. In order to be successful it is vital that the stakeholders, representing as they do the funding bodies and academia, see themselves responsible for the financing and organization of the dissemination of scientific information and its quality assurance. In particular the transition to a wider availability of research results cannot afford to be held back due to a lack of concerted effort among the agencies financing the research. Consequently, in order to achieve a system that will serve science better than the current one, all stakeholders must move together. The participants at the meeting should therefore agree on the principles for a transition towards OA publishing, and that this transition should take place with support from the consortium to be established. Once SCOAP^3 has been created, it is proposed to broaden its membership to funding agencies, particle physics laboratories and libraries over the whole world. The process that will take place in the months to come is likely to significantly influence the future publishing pattern for authors supported by SCOAP^3 members. However, to give potential SCOAP^3 members an expectation of their contributions to the consortium, estimated publication costs based on current author behaviour and publishers' offers will be presented. The contribution of each funding agency will be based on the number of articles published by authors with an affiliation supported by that agency. In this context it should be noted that, due to the widespread culture of co-authorship across the world, the cost for each individual paper would in most cases be shared among several funding agencies.

Furthermore, all practical aspects related to the establishment of the consortium will be discussed, *e.g.* the legal aspects of how the consortium will be organized, the elements which should be included in negotiations in order to avoid an unintentional increased cash flow towards publishers, how to retain the advantage of purchasing power and the consortium's close relation with the author base. Precise details of these procedures will be subsequently worked out by the SCOAP^3 interim-administration for agreement among all partners.

7) Participants

The following funding agencies have demonstrated interest in the establishment of SCOAP^3 and have been invited to the meeting:

Finland	Suomen Akatemia
France	Institut national de physique nucléaire et de physique des particules
Germany	Bundesministerium für Bildung und Forschung
	Deutsche Forschungsgemeinschaft
	Helmholtz-Gemeinschaft / DESY
	Max-Planck-Gesellschaft
Greece	Γενική Γραμματεία Έρευνας και Τεχνολογίας
	(General Secretariat for Research and Technology)
Italy	Istituto Nazionale di Fisica Nucleare
Netherlands	Nationaal Instituut voor Kernfysica en Hoge-Energiefysica
Norway	Norges forskningsråd
Portugal	Laboratório de Instrumentação e Física Experimental de Partículas
Spain	Centro de Investigaciones Energéticas Medioambientales y Tecnológicas
	Programa Nacional de Física de Partículas
Sweden	Vetenskapsrådet
Switzerland	CHIPP – Swiss Institute of Particle Physics
UK	The Particle Physics and Astronomy Research Council

The European Commission – Directorate-General for Research will also participate and present the current view of the Commission.